SÜTRON

ELECTRONIC GMBH

Technical Manual

TesiMod Operating Terminal

HT06

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1 Explanation of Symbols

This manual uses the following symbols to indicate notes and hazardous situations.

Notes for the User

General Danger

Specific Danger

2 The Operating Terminal HT06

The operating terminal HT06 has a display with graphics capabilities and a membrane keyboard with all important functions. A consent switch and an emergency stop button are optional available.

The connection to the PLC is possible with prepared cables that are used simultaneously for the power supply.

The HT06 can be fixed with a magnet (Option) which is attached at the rear side, or with a hook (Option).

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2.1 Front View

1	Enclosure	14	Editing Key Plus
2	Operating Terminal Type Logo	15	Editing Key Minus
3	Display	16	Special Key Enter
4	Emergency Stop Button (Option)	17	Special Key Clear
5	Diagnosis LED Vcc	18	Status LED Help
6	Diagnosis LED RC	19	Special Key Help
7	Diagnosis LED BA	20	Control Key Page Down
8	Diagnosis LED RD	21	Key Cursor Right, Left, Up, Down
9	Consent Switch on the Right Side (Option)	22	Special Key Acknowledge
10	Status LED Function Keys	23	Key Cursor Home
11	Function Keys F1 to F8	24	Editing Key 0 to 9, Alphabet
12	Status LED Data Release	25	Editing Key Dot
13	Special Key Data Release	26	Consent Switch on the Left Side (Option)

2.2 Keyboard

The HT06 supports all important key functions in spite of the small measures. The keyboard is built in click touch technology. The stroke distance is approximately 0.4 mm. The active key surface is embossed and has a size of 9 mm. Every key has a symbol area of 13 x 13 mm. The keyboard foil consists of polyester foil. The LEDs that are provided in some of the keys are integrated above into the respective key element. The LED illuminate green. The keyboard has a lifetime of approximately 6 million switching cycles. In standard mode, the function of the keys is as defined by the user.

2.2.1 Editing Keys

Key: **0 and ( ) °** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters (and) and ° can be entered.

Key: **1 and STU** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters S and T and U can be entered.

Key: **2 and VWX** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters V and W and X can be entered.

Key: **3 and YZ%** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters Y and Z and % can be entered.

Key: **4 and JKL** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters J and K and L can be entered.

Key: **5 and MNO** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters M and N and O can be entered.

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Key: **6 and PQR** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters P and Q and R can be entered.

Key: **7 and ABC** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters A and B and C can be entered.

Key: **8 and DEF** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters D and E and F can be entered.

Key: **9 and GHI** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters G and H and I can be entered.

Key: **Decimal Point and :?!** is used to edit data within the editor. If the system variable **Shift** or **ShiftCase** is programmed, the characters : and ? and ! can be entered.

Key: **Minus and */** can be used to enter negative values within the editor. In the increment editor, the variable value is decremented by 1. When the key is held down, the function is repeated at a rate of repetition that is automatically increased. If the system variable **Shift** or **ShiftCase** is programmed, the characters \ and * and / can be entered.

Key: **Plus and <=>** can be used to enter positive values within the editor. In the increment editor, the variable value is incremented by 1. When the key is held down, the function is repeated at a rate of repetition that is automatically increased. If the system variable **Shift** or **ShiftCase** is programmed, the characters < and = and > can be entered.

2.2.2 Control Keys

Key: **Cursor left** can be programmed to directly select I/O masks.
In the editor, it moves the cursor to the left.

Key: **Cursor right** can be programmed to directly select I/O masks.
In the editor, it moves the cursor to the right.

Key: **Cursor up** can be programmed to directly select I/O masks.
In the editor, it moves the cursor upwards.

Key: **Cursor down** can be programmed to directly select I/O masks.
In the editor, it moves the cursor downwards.

Key: **Cursor home** can be programmed to directly select I/O masks.
In the editor, it moves the cursor to the position of the first input variable.

Key: **Page down** is used to page through tables, recipes and messages. The functionality corresponds to the system variable "**TabPgDn**". The key allows data contents towards the bottom of the table to be viewed.

2.2.3 Special Keys

Key: **Help key** always displays the current help text (online help). When the status-LED help flashes, it signals that an error message is pending. The error or system message is always displayed in plain-text.

Key: **Data Release** key is used to switch from a menu into the editor. The status-LED data release lights up when the editing mode is active. When the Data Release key is pressed within the editor, the editing mode is exited.

Key: **Enter** is used to conclude data entry. When pressed while in the startup mask, the key switches into the setup mask.

Key: **Clear** deletes the character beneath the cursor when it is used in an editor. Deletes the selected messages from the data memory.

Key: **Acknowledge** is used as an acknowledge key for the message system.

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2.2.4 Function Keys

Function key F1 to F8 with integrated LEDs for functional feedback. The key functions can be freely assigned to a softkey functionality, either as direct access keys for menu control or to activate a function in the controller.

2.3 Diagnosis LEDs

There are four diagnosis LEDs positioned above the keyboard. The diagnosis LEDs signal different states of the interface and the supply voltage.

Diagnosis LEDs

Designation	Color	Function InterBus	Function RS232	Function PROFIBUS-DP / MPI	Function CAN-Bus
Vcc	green	Voltage Monitor	Voltage Monitor	Voltage Monitor	Voltage Monitor
RC	green	Remote Bus Check	-	-	-
BA	green	Bus Active	-	Data Exchange	-
RD	red	Remote Bus Disabled	-	-	-

2.4 Dimensions

2.4.1 Front View

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2.4.2 Side View

2.5 Pin and Connector Assignments

The standard HT06 is delivered with an open cable end.
Optionally the terminal can be equipped with the following connectors:
– 16 pin circular connector
– 12 pin circular connector

The interior setup of the cable is always structured in three parts.
1. 3 x 0,5 mm² for supply voltage
2. 2 x 1,0 mm² and 6 x 0,25 mm² for the emergency stop button and the consent switch
3. 5 x 0,25 mm² for communication

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2.5.1 Open Cable End

The standard operating terminal is equipped with an open cable end.
Grey shaded entries are only optionally available.

Pin Assignment for Open Cable End

Strand	Ø mm²	InterBus		PROFIBUS-DP / MPI		RS232		CAN-Bus	
		Desig-nation	Function	Desig-nation	Function	Desig-nation	Function	Desig-nation	Function
RDBU	0,25	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact
PK	0,25	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact
WHGN	0,25	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact
OR	0,25	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact
BU	1,0	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact
BN	1,0	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact
WHYE	0,25	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)
BNGN	0,25	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)
BK	0,5	0 V	Supply Voltage 0 VDC	0 V	Supply Voltage 0 VDC	0 V	Supply Voltage 0 VDC	0 V	Supply Voltage 0 VDC
VT	0,5	+ 24V	Supply Voltage 24 VDC	+ 24V	Supply Voltage 24 VDC	+ 24V	Supply Voltage 24 VDC	+ 24V	Supply Voltage 24 VDC
YE	0,5	⏚	Low-Noise Earth	⏚	Low-Noise Earth	⏚	Low-Noise Earth	⏚	Low-Noise Earth
GR	0,25	GND	Signal Ground	DGND	Data Transmission Potential	GND	Signal Ground	GND	Signal Ground
WH	0,25	DI1	Data In	CNTR-N	Control Signal Repeater Minus	TD	Transmit Data	CANH	CAN_H Bus Line (Dominant HIGH)
BN	0,25	/DI1	Data In Reverse	N.C.	Not Connected	RTS	Request to Send	CANL	CAN_L Bus Line (Dominant LOW)

Pin Assignment for Open Cable End

RD	0,25	DO1	Data Out	RxD/ TxD-N	Transmit- / Receive Data Minus	CTS	Clear to Send	CANL	CAN_L Bus Line (Dominant LOW)
GN	0,25	/DO1	Data Out Reverse	RxD/ TxD-P	Transmit- / Receive Data Plus	RD	Receive Data	CANH	CAN_H Bus Line (Dominant HIGH)

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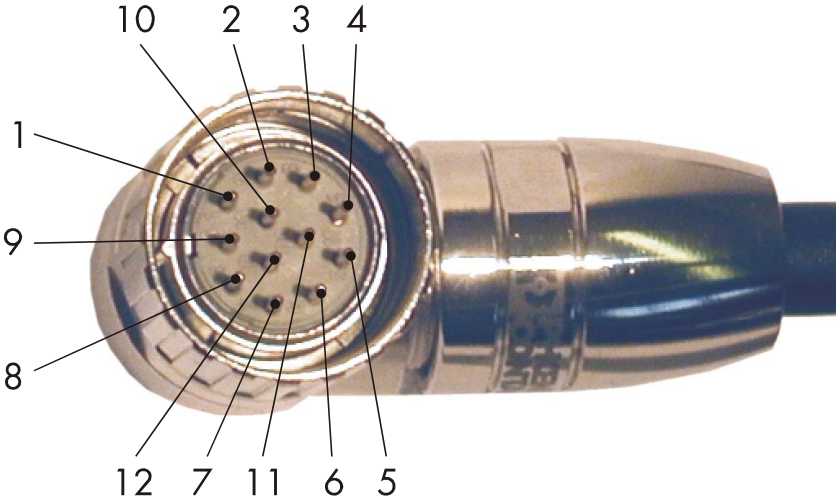
2.5.2 12 pin Circular Connector

Optionally the operating terminal can be equipped with a preassembled cable with a 12 pin circular connector.
Grey shaded entries are only optionally available.



Pin Assignment for 12 pin Circular Connector

Pin	InterBus	
	Desig-nation	Function
1	DI1	Data In
2	/DI1	Data In Reverse
3	GND	Signal Ground
4	NC / NO	Emergency Stop Break Contact / Make Contact (optional)
5	NC / NO	Emergency Stop Break Contact / Make Contact (optional)
6	NC	Emergency Stop Break Contact
7	⏚	Low-Noise Earth
8	+ 24V	Supply Voltage 24 VDC
9	DO1	Data Out
10	/DO1	Data Out Reverse

Pin Assignment for 12 pin Circular Connector

11	NC	Emergency Stop Break Contact
12	0 V	Supply Voltage 0 VDC

The external shield and the bus shield must be connected to the metal hoods of the connector housing over as large a surface as possible.

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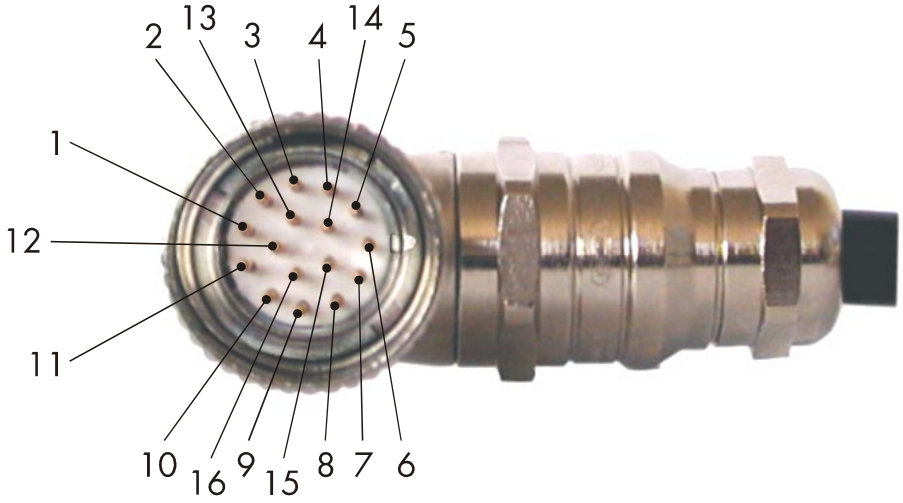
2.5.3 16 pin Circular Connector

Optionally the operating terminal can be equipped with a preassembled cable with a 16 pin circular connector.
Grey shaded entries are only optionally available.



Pin Assignment for 16 pin Circular Connector

Pin	InterBus		PROFIBUS-DP / MPI		RS232		CAN-Bus	
	Desig-nation	Function	Desig-nation	Function	Desig-nation	Function	Desig-nation	Function
1	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact
2	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact
3	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact
4	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact	NC	Emergency Stop Break Contact
5	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)
6	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)	NC / NO	Emergency Stop Break Contact / Make Contact (Optional)
7	GND	Signal Ground	DGND	Data Transmission Potential	GND	Signal Ground	GND	Signal Ground
8	0 V	Supply Voltage 0 VDC	0 V	Supply Voltage 0 VDC	0 V	Supply Voltage 0 VDC	0 V	Supply Voltage 0 VDC

Pin Assignment for 16 pin Circular Connector

9	+ 24V	Supply Voltage 24 VDC	+ 24V	Supply Voltage 24 VDC	+ 24V	Supply Voltage 24 VDC	+ 24V	Supply Voltage 24 VDC
10	⏚	Low-Noise Earth	⏚	Low-Noise Earth	⏚	Low-Noise Earth	⏚	Low-Noise Earth
11	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact	NO	Consent Switch Left Make Contact
12	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact	NO	Consent Switch Right Make Contact
13	DI1	Data In	CNTR-N	Control Signal Repeater Minus	TD	Transmit Data	CANH	CAN_H Bus Line (Dominant HIGH)
14	/DI1	Data In Reverse	N.C.	Not Connected	RTS	Request to Send	CANL	CAN_L Bus Line (Dominant LOW)
15	DO1	Data Out	RxD/ TxD-N	Transmit- / Receive Data Minus	CTS	Clear to Send	CANL	CAN_L Bus Line (Dominant LOW)
16	/DO1	Data Out Reverse	RxD/ TxD-P	Transmit- / Receive Data Plus	RD	Receive Data	CANH	CAN_H Bus Line (Dominant HIGH)

☞ The external shield and the bus shield must be connected to the metal hoods of the connector housing over as large a surface as possible.

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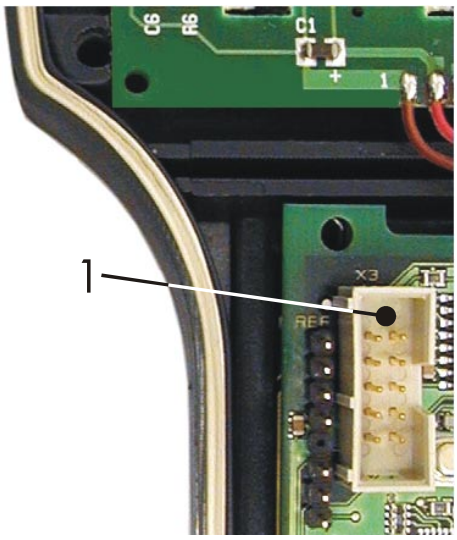
2.6 Download / Upload Interface

The interface X3 (SER2-RS232c) is responsible for the upload or the download.

The following steps must be done for this purpose:

- Remove the fastening screws of the enclosure at the rear side and remove the enclosure
- Plug the ribbon cable adaptor on the interface X3 (see figure below)
- Connect the ribbon cable adaptor with the download cable
- Connect the download cable with an available interface of your computer
- Now you can carry out the upload or download
- Remove the download cable and the ribbon cable adaptor after the upload/download
- Place the enclosure on the rear side of the unit
- Fasten the screws of the enclosure properly



1 Position of the interface X3 (SER2-RS232c)

2.7 Supply Voltage

The unit is equipped with a reverse voltage protection. If the poling is wrong, the unit doesn't operate.

This unit confirms to the safety class I. For safe operation it is necessary to use safety extra-low voltage (SELV) in accordance with DIN EN 61131 for the supply voltage.

2.8 Emergency Stop Button

The operating terminal is optionally equipped with an emergency stop button at the end face. The button has a mechanical lifetime of approximately 30000 switching cycles. The switch elements in the button have a lifetime of approximately 5 million switching cycles. Two break contacts or optionally one break contact and one make contact are actuated.

2.9 Consent Switch

The operating terminal is optionally equipped with a consent switch on the left and the right hand side. Each switch has a mechanical lifetime of approximately 1 million switching cycles. The switch element has a lifetime of approximately 500 000 switching cycles. One make contact is actuated per consent

2.10 Display

The Display for the HT06 at a glance:

Type:	LCD Module
Resolution:	126 x 64 Pixel
Graphics Capabilities:	Full Graphics
Backlight:	LED
Viewing Angle:	90 °
Default Contrast Setting:	By User-Mode Switch
Contrast Setting:	By Software, Temperature Compensated
Lifetime LCD:	100.000 h
Lifetime Backlight:	100.000 h
Display potentiality:	Extended ASCII Character Set, Full Graphics
Displayable Character Attributes:	Inverse, Flashing, Zoom and Underlined
Lines (Font Normal):	8
Characters/Line (Font Normal):	21
Character Matrix (Font Normal):	6 x 8 Pixel
Character Height (Font Normal):	4,1 mm
Character Matrix (Font Zoom):	12 x 16 Pixel
Character Height (Font Zoom):	8,3 mm
Pixel Colour:	Black
Background Colour:	Yellow-Green
Pixel Size:	0,48 x 0,48 mm
Visible Front Cutout:	40 mm x 72 mm (H x W)

If the display is damaged, do not swallow or breathe in the liquids or gases being emitted and avoid direct contact with skin.
Danger of Poisoning! Could Result in Burns!

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2.10.1 Display Contrast Setting

The contrast for the display can be adjusted by means of the software. This requires the system variable **LCDContrast** to be set up in an I/O mask of the application. The value can then be modified using any editor that can handle integer numbers.
The limit values for the brightness must be set to

Lower level: -25
Upper level: +125

If this variable is not defined, the default setting (value 25) will be loaded when the system is initialized. The system variable can be stated in any I/O-mask of the application!

2.10.2 Default Contrast Setting

If the contrast of the display should be such that the masks are no longer legible, the default contrast setting can be restored using the user-mode switch.

Position of the switch to restore the contrast:

S1 ON
S2 OFF
S3 OFF
S4 ON

This switch position coincides with “activating download by hardware”. The contrast will be reset before the warning is displayed. The warning will be displayed in a legible manner.
How to setup the default contrast:
- Switch off the operating terminal
- Remove the fastening screws of the enclosure at the rear side and remove the enclosure
- Set the DIP-switches to the above described switch positions
- Switch on the operating terminal
- Upon display of a warning, switch off the operating terminal
- Set the switch S4 to the OFF-position
- Place the enclosure on the rear side of the unit
- Fasten the screws of the enclosure properly
- Switch on the terminal again.

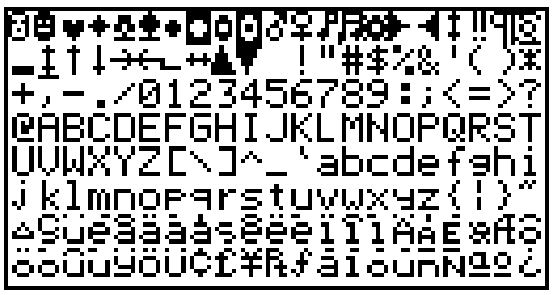
The application description is not lost.

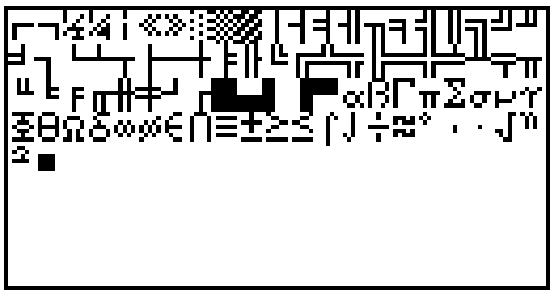
2.10.3 Character Attributes

By preselecting an attribute, any characters can be displayed as follows:
- normal
- flashing
- underlined
- inverse

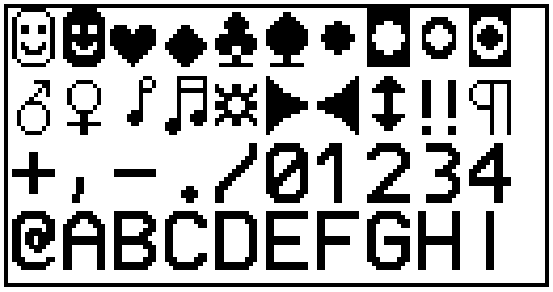
and in any combination.

2.10.4 Font Normal





2.10.5 Font Zoom



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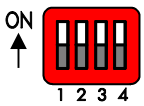
2.10.6 ASCII Character Set Table

000		032		064	@	096	`	128	Ç	160	á	192	└	224	α
001	☺	033	!	065	A	097	a	129	ü	161	í	193	┴	225	β
002	☻	034	"	066	B	098	b	130	é	162	ó	194	┬	226	Γ
003	♥	035	#	067	C	099	c	131	â	163	ú	195	├	227	π
004	♦	036	$	068	D	100	d	132	ä	164	ñ	196	─	228	Σ
005	♣	037	%	069	E	101	e	133	à	165	Ñ	197	┼	229	σ
006	♠	038	&	070	F	102	f	134	å	166	ª	198	╞	230	µ
007	•	039	'	071	G	103	g	135	ç	167	º	199	╟	231	τ
008	◘	040	(	072	H	104	h	136	ê	168	¿	200	╚	232	Φ
009	○	041	)	073	I	105	i	137	ë	169	⌐	201	╔	233	Θ
010	◙	042	*	074	J	106	j	138	è	170	¬	202	╩	234	Ω
011	♂	043	+	075	K	107	k	139	ï	171	½	203	╦	235	δ
012	♀	044	,	076	L	108	l	140	î	172	¼	204	╠	236	∞
013	♪	045	-	077	M	109	m	141	ì	173	¡	205	═	237	ø
014	♫	046	.	078	N	110	n	142	Ä	174	«	206	╬	238	∈
015	☼	047	/	079	O	111	o	143	Å	175	»	207	╧	239	∩
016	►	048	0	080	P	112	p	144	É	176	▒	208	╨	240	≡
017	◄	049	1	081	Q	113	q	145	æ	177	▒	209	╤	241	±
018	↕	050	2	082	R	114	r	146	Æ	178	▓	210	╥	242	≥
019	‼	051	3	083	S	115	s	147	ô	179	│	211	╙	243	≤
020	¶	052	4	084	T	116	t	148	ö	180	┤	212	╘	244	⌠
021	§	053	5	085	U	117	u	149	ò	181	╡	213	╒	245	⌡
022	▬	054	6	086	V	118	v	150	û	182	╢	214	╓	246	÷
023	↨	055	7	087	W	119	w	151	ù	183	╖	215	╫	247	≈
024	↑	056	8	088	X	120	x	152	ÿ	184	╕	216	╪	248	°
025	↓	057	9	089	Y	121	y	153	Ö	185	╣	217	┘	249	∙
026	→	058	:	090	Z	122	z	154	Ü	186	║	218	┌	250	·
027	←	059	;	091	[	123	{	155	¢	187	╗	219	█	251	√
028	∟	060	<	092	\	124	¦	156	£	188	╝	220	▄	252	ⁿ
029	↔	061	=	093	]	125	}	157	¥	189	╜	221	▌	253	²
030	▲	062	>	094	^	126	~	158	₧	190	╛	222	▐	254	
031	▼	063	?	095	_	127	⌂	159	ƒ	191	┐	223	▀	255	

2.11 User-Mode Switch

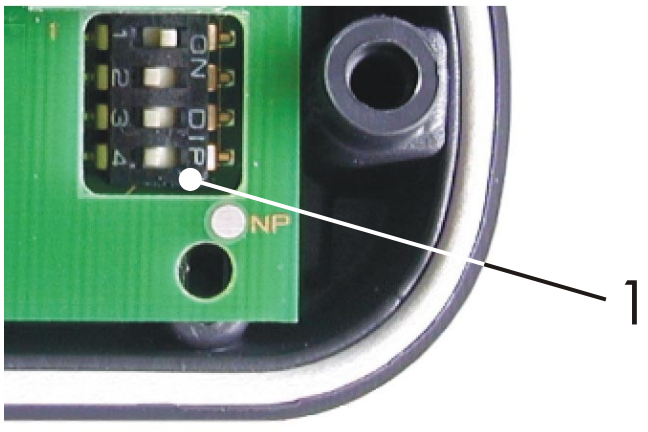
The user-mode switch is below on the right of the keyboard card of the terminal. In order to be able to actuate the user-mode switch, the enclosure must be open. Remove the fastening screws of the enclosure at the rear side and remove the enclosure. The keyboard card is in the top part of the enclosure.

User-mode switch 4 Switches



S1	S2	S3	S4	Function
I	X	-	-	Standard-Mode with PLC (delivery state)
I	X	I	-	Standard-Mode without PLC
-	I	-	-	Transparent-Mode with start and stop code of the keys
-	-	-	I	Transparent-Mode without stop code of the keys
I	-	-	I	Activate download (deletes application memory) und default contrast setting
I	-	I	I	Activate upload

Legend of above table:
I = Switch position ON
- = Switch position OFF
X = Switch position arbitrary



1 Position of the user-mode switch

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2.12 Battery

A built-in lithium battery buffers the data in the CMOS-RAM memory and also supplies the real-time clock with power. The battery provides a lifetime of at least 5 years, even under unfavourable operating conditions.
If the battery is drained the system message „change battery“ is generated. We recommend to change the battery at maintenance in a interval of 4 years. A new battery is supported by Sütron electronic or the sales representative of your country.
When the message „change battery“ is recognized too late, for example real-time clock stopped or displays wrong date, it is possible that the data in the CMOS-RAM is lost. Therefore you have to check the data (changeable passwords, parameters in the system variables, data set of the recipes and the entries in the message system).

Replacing the battery:
The battery can be replaced while the operating voltage is connected to ensure that the message data and time setting are not lost. Mind the safety instructions!
- Remove the fastening screws of the enclosure at the rear side and remove the enclosure
- Replace the cable fastener, which is used to hold the battery
- Plug off the connector of the battery cable and replace the battery
- Plug on the connector of the new battery
- Place the new battery onto the plastic carrier on the printed circuit board and fasten it with a new cable fastener
- Place the enclosure on the rear side of the unit
- Fasten the screws of the enclosure properly

Changing the battery may only be performed by qualified and authorized personnel!

Sewage and refuse disposal:
Dispose only drained batteries into the collection box of the community or of the local dealer. The battery is stated as drained when the message „change battery“ appears on the display of the appliance. To prevent short circuitry in the collection boxes insulate the poles of each battery with insulation tape or put each single battery into a plastic bag.

Do not put lithium batteries in fire or heat them above 100° C and do not recharge them. **Danger of Explosion!**

Do not open lithium batteries. **Danger of Poisoning!**

Hazardous voltages can exist inside electrical installations that can pose a danger to humans. Coming in contact with live parts may result in **electric shock!**

Electrostatic discharges can damage electronic components! ESD protective measures must be observed!

2.13 Fuse

A semiconductor fuse is used to prevent damage to the operating terminal. Once the fuse has been activated, the device must be disconnected from the supply voltage to allow the semiconductor fuse to regenerate. With an ambient temperature of 20 °C, the regeneration takes about 20 seconds. The higher the ambient temperature, the longer the regeneration period.
The semiconductor fuse is not designed to be replaced.

2.14 Application Memory

The unit is equipped with a 256 KByte flash memory as application memory.
After switching on the unit the size of the application memory is displayed. This memory area is available to store the user application, the loadable protocol driver, the fonts and the recipe data.

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3 Technical Data

Keyboard	A Total of 32 Keys, ClickTouch PCB Keyboard, 6 Million Switching Cycles Divided into 6 Control Keys 2 Special Keys with LED 3 Special Keys without LED 13 Editing Keys 8 Function Keys	
Display	Type:	LCD Module
	Resolution:	126 x 64 Pixel
	Backlight:	LED
	Display Area:	40 x 72 mm (H x W)
	Pixel Size:	0.48 x 0.48 mm
	Pixel Distance:	0.04 mm
	Lifetime LCD:	100000 h
	Lifetime Backlight:	100000 h
Interfaces	Variable Baud Rates and Data Formats	
	Internal X3 SER2 RS232c,	
	Not Galvanical Isolated	Download/Upload
	InterBus, not Galvanical Isolated	Communication
	PROFIBUS-DP, Galvanical Isolated	Communication
	MPI, Galvanical Isolated	Communication
	CAN-Bus, Galvanical Isolated	Communication
	RS232, Galvanical Isolated	Communication
	(InterBus, PROFIBUS-DP and MPI are Terminated in the Terminal.)	

Protocolls
Standard

ABB CS31
ABB T200
AEG KS-Functions
AEG Modbus
Allen Bradley*
Bosch BUEP19/BUEP19E*
DIN-Meßbus Slave, DIN-Meßbus Gateway*
GE Fanuc SNP*
IDEC Micro3*
Jetter PASE / PCOM5*
Klaschka YCOM/C*
Moeller SUCOM 1 (PS306/316)*
Moeller SUCOM 1 (PS4-201)
Mitsubishi FX-Series and A-Series*
OMRON Host-Link
OMRON NT-Link
Siemens Sinec L1 Master Link*
Siemens 3964R/RK512*

Siemens S5 PG (AS511)*
Siemens S7 PPI*

* This interfacing is possible for some controller types only with interface converter.

Protocolls Field Bus	CAN/CANopen InterBus PROFIBUS-DP Siemens S7 MPI	
Central Unit	Z84-CPU, 10 MHz, Watchdog Timer, Real-Time Clock, Programmable Interface Parameters, Temperature Compensation of the Display, Adjustment of Contrast, Battery Monitoring, User-Mode Switch	
Memory	256 KByte Flash Memory, Application Memory 256 KByte Flash Memory, Firmware 128 KByte stat. CMOS-RAM, Battery Backed	
Connection System	12 pin Circular Connector 16 pin Circular Connector	
Connection Cable	Diameter: Weight: Bending for Fixed Installation: Bending for Loose Installation:	11 mm approx. 172 g/m 4 x Diameter of Cable 10 x Diameter of Cable
Supply Voltage	24 V Direct Voltage, Residual Ripple Max. 10%, SELV in Accordance to DIN EN 61131 Minimum Voltage Maximum Voltage Typ. Power Consumption Peak Current	 19,2 V 30,2 V <0,25 A <0,5 A
Connected Load	~5 W	
Fuse	Semiconductor Fuse	
Reverse Voltage Protection	Protection Diode	
Emergency Stop Button (Option)	Type: Lifetime: Switch Unit: Lifetime:	Rafi RAFIX 16 1.30074.122 3 x 10^4 Switching Cycles Rafi RAFIX 16 Universal Switch Unit 2 NC or Optionally 1 NC + 1 NO 5 x 10^5 Switching Cycles

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Consent Switch (Option)	Typ:	ITW Switch Series 59
	Lifetime:	1 x 10^5 Switching Cycles
	Switch Unit:	1 NO
	Lifetime:	5 x 10^4 Switching Cycles
Noise Immunity	EC Electromagnetic Compatibility Directive 89/336/EEC EN 50082-2 EN 55011 Limit Class B EN 55022 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6	
Environmental Test	Operating Temperature	0°C to +50°C
	Storage Temperature	-10°C bis +70°C
	Relative Humidity for:	
	Operation	Max. 75% Annual Average
	Storage	Max. 75% Annual Average
	Non-condensing	
Degrees of Protection	EN 60529 Mechanical Degrees of Protection	
Impermeability	IP54	
Enclosure	Type:	ROSE Beluga 2200
	Material:	Polyamide
	Colour:	RAL7021
	Impact Resistance:	>7 Nm in Accordance to DIN 50014
	Burning Behaviour:	V2 in Accordance to UL94
Measures	Without Emergency Stop Button: Approx. 229 x 116.5 x 125 (L x W x D) With Emergency Stop Button: Approx. 253 x 116.5 x 125 (L x W x D)	
Weight	415 g Without Cable (Weight of Cable Approx. 172 g/m)	

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